

creating a first program chain and a second program chain each containing a plurality of video data cells containing video data [creating a first data arrangement containing a plurality of video data cells in each of which video data has been stored];

creating [first management information table that is for managing said first data arrangement and includes first cell playback information specifying the playback order of video data cells in said first data arrangement and first content information on the contents of said first data arrangement] a program chain information table that includes a first group of program chain information associated with said first program chain, a second group of program chain information associated with said second program chain, and search pointers corresponding to program chain numbers for searching the corresponding program chains, said first and said second group of program chain information each comprising:

- (1) first cell playback information specifying a playback order of said video data cells in an associated program chain;
- (2) content information defining contents of said associated program chain; and
- (3) program chain navigational control information comprising:
  - (a) previous program chain information indicative of whether there exists a program chain that precedes said associated program chain during reproduction of said program chains from said recording medium,
  - (b) a previous program chain number specifying said program chain preceding said associated program chain, when said program chain preceding said associated program chain exists,

(c) next program chain information indicative of whether there exists a program chain that follows said associated program chain during reproduction of said program chains from said recording medium, and

(d) a next program chain number specifying said program chain following said associated program chain, if said program chain following said associated program chain exists; and

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recording [the first management] the program chain information table in a first [segment area of the data area on] portion of a recording medium and recording said [the] first [data arrangement] and said second program chains in a second [segment area] portion of said recording medium different from [the] said first [segment area of the data area on the recording medium] portion.

82. (Amended) A recording method according to claim 81, wherein said creating a program chain information table includes providing, in said program chain information table, goto program chain information indicative of whether there exists a goto program chain that can be reproduced instead of continuing to reproduce said associated program chain; and a goto program chain number indicative of a number of said goto program chain, when said goto program chain exists [further comprising the steps of:

creating a second data arrangement containing a plurality of cells in each of which video data has been stored; and

creating second management information that is for managing said second data arrangement and includes second cell playback information specifying the playback order of

video data cells in said second data arrangement and second content information on the contents of said second data arrangement, wherein

said recording step records not only the second management information along with the first management information table in the first segment area of the data area on the recording medium, but also the second data arrangement along with the first data arrangement in the second segment area different from the first segment area of the data area on the recording medium].


83. (Amended) A recording method according to claim 82, wherein said creating said program chain information table includes providing in each of said first and said second group of program chain information indicative of a duration of time needed to reproduce said associated program chain [said first and second content information include the presence or absence of data arrangements to which said first and second data arrangements are to be concatenated as well as the numbers of data arrangements at concatenating destinations].

84. (Amended) A recording method according to claim 82, wherein said creating said program chain information table includes providing in each of said first and said second group of program chain information indicative of a user operation that is prohibited during reproduction of said associated program chain [further comprising the steps of:


creating a third data arrangement containing a plurality of cells in each of which video data has been stored; and

creating third management information that is for managing said third data arrangement and includes third cell playback information specifying the playback order of

video data cells in said third data arrangement and third content information on the contents of said third data arrangement, wherein


AN  said recording step records not only the third management information along with the first and second management information in the first segment area of the data area on the recording medium, but also the third data arrangement along with the first and second data arrangements in the second segment area different from the first segment area of the data area on the recording medium].

85. (Amended) A recording method according to claim 84, wherein said creating said program chain information table includes providing first search pointer information identifying a start address of said first group of program chain information and second search pointer information identifying a start address of said second group of program chain information [said first, second, and third content information include the presence or absence of data arrangements to which said first, second, and third data arrangements are to be concatenated as well as the numbers of data arrangements at concatenating destinations].

AB  87. (Amended) A recording method according to claim 81, wherein said creating said program chain information table includes providing [wherein said first content] information indicative of a [includes the] number of video data cells [cell data items] in said [first data arrangement] associated program chain.

88. (Amended) A recording method according to claim 81, wherein said creating a first program chain and a second program chain includes providing said video data cells

[include] with video data packs for reproducing images, audio data packs for reproducing audio, and sub-picture data packs for reproducing sub-pictures, [the] said audio data packs containing at least one [or more] audio stream, wherein each audio stream is [streams that are] identified by an audio stream [numbers] number and can be reproduced selectively, and [the] said sub-picture data packs [containing] contain sub-picture streams that are identified by sub-picture stream numbers and can be reproduced selectively.



89. (Amended) A recording method according to claim 81, wherein said creating said program chain information table includes providing [first content information includes] selectable audio stream numbers and selectable sub-picture stream numbers in said first and said second group of program chain information.

90. (Amended) A recording method according to claim 81, wherein said creating said program chain information table includes providing program chain navigational control [first content] information [includes] indicative of a [the presence or absence of] repetitive playback mode of said associated program chain and indicative of a [the corresponding first data arrangement as well as the] number of playbacks to be repeated.

91. (Amended) A recording method according to claim 81, wherein said creating said program chain information table includes providing said program chain navigational control information with [first content information includes] information [as to] indicative of whether [or not the] a reproduced state of said associated program chain is forced to remain stationary after [the corresponding first data arrangement] said associated program chain has been

reproduced and information indicative of a duration of said stationary state, if [the] said reproduced state is to remain [made] stationary[, further information on the duration of the stationary state].

92. (Amended) A recording method according to claim 81, wherein [said first management information table includes] said creating of said program chain information table includes providing each of said first and said second group of program chain information with a program chain command table containing precommand information [in which the] describing commands to be executed before said associated program chain is presented [processing related to the playback has been written before the playback of the corresponding first data arrangement].

93. (Amended) A recording method according to claim 81, wherein [said first management information table includes] said creating of said program chain information table includes providing each of said first and said second group of program chain information with a program chain command table containing postcommand information describing commands to be executed after said associated program chain is presented [in which the processing related to the playback has been written after the playback of the corresponding first data arrangement].

94. (Amended) A recording method according to claim [81] 93, wherein said postcommand information includes a command to change [the] a processing related to playback of said associated program chain according to an externally supplied input [in the

course of reproducing the corresponding first data arrangement] after reproduction of said associated program chain.

95. (Amended) A recording method according to claim 81, wherein said creating of said program chain information table includes providing each of said first and said second group of program chain information with [first management information table includes] intercell command information defining a command to be executed after a cell in said associated program chain has been presented [in which a command process related to the playback has been written in the course of reproducing the corresponding first data arrangement, and said first cell playback information includes information that is written in the intercell command information after the completion of reproduction of a particular data cell and specifies a command process to be executed].

96. (Amended) A recording method according to claim 81, wherein said step of creating said program chain information table includes providing each of said first and said second group of program chain information with a program chain program map defining a structure for programs in said associated program chain, said program chain map including an entry cell number for a first cell in each program in said associated program chain [video data cells include video data packs for reproducing images, audio data packs for reproducing audio, and sub-picture data packs for reproducing sub-pictures, and items that the user can choose are reproduced from the sub-picture data packs].

97. (Amended) A recording method according to claim 81, wherein said step of creating said program chain information table includes providing said [first] cell playback information [includes] with data indicative of a [the] start address of [the] a first video data cell in said [first data arrangement in said data area] associated program chain.

98. (Amended) A recording method according to claim 81, wherein said [first] step of creating said program chain information table includes providing said cell playback information [includes] with data indicative of a [the] start address of [the] a last video data cell in said [first data arrangement in said data area] associated program chain.

99. (Amended) A recording method according to claim 81, wherein said step of creating said program chain information table includes providing said data area [further has] with search information for searching for said [first management] program chain information table recorded therein.


100. (Amended) A recording method according to claim 81, further comprising the steps of creating [wherein said data area further has] menu information which is used to select one of the first and the second program chains for reproduction and storing the menu information on the recording medium [for choosing said first data arrangement recorded therein].

101. (Amended) A recording apparatus comprising:



means for creating a first program chain and a second program chain each containing a plurality of video data cells containing video data;

means for creating a program chain information table that includes a first group of program chain information associated with said first program chain, a second group of program chain information associated with said second program chain, and search pointers corresponding to program chain numbers for searching the corresponding program chains, said first and said second group of program chain information each comprising:

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- (1) first cell playback information specifying a playback order of said video data cells in an associated program chain;
  - (2) content information defining contents of said associated program chain; and
  - (3) program chain navigational control information comprising:
    - (a) previous program chain information indicative of whether there exists a program chain that precedes said associated program chain during reproduction of said program chains from said recording medium,
    - (b) a previous program chain number indicative of a number of said program chain preceding said associated program chain, if said program chain preceding said associated program chain exists,
    - (c) next program chain information indicative of whether there exists a program chain that follows said associated program chain during reproduction of said program chains from said recording medium, and
    - (d) a next program chain number indicative of a number of said program chain following said associated program chain, when said program chain following said associated program chain exists; and

means for recording said program chain information table in a first portion of a recording medium and for recording said first and said second program chains in a second portion of said recording medium different from said first portion

[means for creating not only a first data arrangement containing a plurality of video data cells in each of which video data has been stored, but also first management information table that is for managing said first data arrangement and includes first cell playback information specifying the playback order of video data cells in said first data arrangement and first content information on the contents of said first data arrangement; and

means for recording not only the first management information table in a first segment area of the data area on a recording medium, but also the first data arrangement in a second segment area different from the first segment area of the data area on the recording medium].

102. (Amended) A recording apparatus according to claim 101, wherein said means for creating said program chain information table also provides said program chain navigational control information with the following:

goto program chain information indicative of whether there exists a goto program chain that can be reproduced instead of continuing to reproduce said associated program chain; and

a goto program chain number indicative of a number of said goto program chain, when said goto program chain exists [creating means creates not only a second data arrangement containing a plurality of cells in each of which video data has been stored, but also second management information that is for managing said second data arrangement and includes second cell playback information specifying the playback order of video data cells in

said second data arrangement and second content information on the contents of said second data arrangement; and said recording means records not only the second management information along with the first management information table in the first segment area of the data area on the recording medium, but also the second data arrangement along with the first data arrangement in the second segment area different from the first segment area of the data area on the recording medium].



103. (Amended) A recording apparatus according to claim 102, wherein said means for creating said program chain information table also provides each of said first and said second group of program chain information with information indicative of a duration of time needed to reproduce said associated program chain [first and second content information include the presence or absence of data arrangements to which said first and second data arrangements are to be concatenated as well as the numbers of data arrangements at concatenating destinations].

104. (Amended) A recording apparatus according to claim 102, wherein[:] said means for creating said program chain information table also provides each of said first and said second group of program chain information with information indicative of a user operation that is prohibited during reproduction of said associated program chain [creating means creates not only a third data arrangement containing a plurality of cells in each of which video data has been stored, but also third management information that is for managing said third data arrangement and includes third cell playback information specifying the playback order of video data cells in said third data arrangement and third content information

on the contents of said second data arrangement; said recording means records not only the third management information along with the first and second management information in the first segment area of the data area on the recording medium, but also the third data arrangement along with the first and second data arrangements in the second segment area different from the first segment area of the data area on the recording medium].

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105. (Amended) A recording apparatus according to claim 104, wherein said means for creating said program chain information table also provides said program chain information table with first search pointer information identifying a start address of said first group of program chain information and second search pointer information identifying a start address of said second group of program chain information [first, second, and third content information include the presence or absence of data arrangements to which said first and second data arrangements are to be concatenated as well as the numbers of data arrangements at concatenating destinations].

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107. (Amended) A recording apparatus according to claim 101, wherein said means for creating said first and said second program chain information table also provides said first and said second group of program chain information with [content] information [includes the] indicative of a number of video data cells [cell data items] in said [first data arrangement] associated program chain.

108. (Amended) A recording apparatus according to claim 101, wherein said means for creating said first and said second program chains defines said video data cells [include]

as including video data packs for reproducing images, audio data packs for reproducing audio, and sub-picture data packs for reproducing sub-pictures, [the] said audio data packs containing at least one [or more] audio stream, wherein each audio stream is [streams that are] identified by an audio stream [numbers] number and can be reproduced selectively, and [the] said sub-picture data packs [containing] contain sub-picture streams that are identified by sub-picture stream numbers and can be reproduced selectively.

109. (Amended) A recording apparatus according to claim 101, wherein means for creating said first and said second program chain information table also provides each of said first [content] and said second group of program chain information [includes] with selectable audio stream numbers and selectable sub-picture stream numbers.

110. (Amended) A recording apparatus according to claim 101, wherein said means for creating said first and said second program chain information table also provides said program chain navigational control [first content] information [includes] with information indicative of a [the presence or absence of] repetitive playback mode of [the corresponding first data arrangement as well as the] said associated program chain and information indicative of a number of playbacks to be repeated.

111. (Amended) A recording apparatus according to claim 101, wherein said means for creating said first and said second program chain information table also provides said program chain navigational control information with [first content information includes] information [as to] indicative of whether [or not the] a reproduced state of said associated

program chain is forced to remain stationary after [the corresponding first data arrangement] said associated program chain has been reproduced and information indicative of a duration of said stationary state, if [the] said reproduced state is to remain [made] stationary[, further information on the duration of the stationary state].

112. (Amended) A recording apparatus according to claim 101, wherein said means for creating said first and said second program chain information table also provides each of said first and said second group of program chain information with a program chain command table containing [first management information table includes] precommand information [in which the] describing commands to be executed before said associated program chain is presented [processing related to the playback has been written before the playback of the corresponding first data arrangement].

113. (Amended) A recording apparatus according to claim 101, wherein said means for creating said first and said second program chain information table also provides each of said first and said second group of program chain information with a program chain command table containing [said first management information table includes] postcommand information describing commands to be executed after said associated program chain is presented [in which the processing related to the playback has been written after the playback of the corresponding first data arrangement].


114. (Amended) A recording apparatus according to claim [101] 113, wherein said postcommand information includes a command to change [the] a processing related to

playback of said associated program chain according to an externally supplied input [in the course of reproducing the corresponding first data arrangement] after reproduction of said associated program chain.

115. (Amended) A recording apparatus according to claim 101, wherein said means for creating said first and said second program chain information table also provides each of said first and said second group of program chain information with [first management information table includes] intercell command information defining a command to be executed after a cell in said associated program chain has been presented [in which a command process related to the playback has been written in the course of reproducing the corresponding first data arrangement, and said first cell playback information includes information that is written in the intercell command information after the completion of reproduction of a particular data cell and specifies a command process to be executed].

116. (Amended) A recording apparatus according to claim 101, wherein said means for creating said first and said second program chain information table also provides each of said first and said second group of program chain information with a program chain program map defining a structure for programs in said associated program chain, said program chain map including an entry cell number for a first cell in each program in said associated program chain [video data cells include video data packs for reproducing images, audio data packs for reproducing audio, and sub-picture data packs for reproducing sub-pictures, and items that the user can choose are reproduced from the sub-picture data packs].

117. (Amended) A recording apparatus according to claim 101, wherein said means for creating said first and said second program chain information table also provides said [first] cell playback information [includes] with data indicative of a [the] start address of [the] a first video data cell in said [first data arrangement in said data area] associated program chain.

 118. (Amended) A recording apparatus according to claim 101, wherein said [first] means for creating said first and said second program chain information table also provides said cell playback information [includes] with data indicative of a [the] start address of [the] a last video data cell in said [first data arrangement in said data area] associated program chain.

119. (Amended) A recording apparatus according to claim 101, [wherein] further comprising:

means for creating [said data area further has] search information for searching for said [first management] program chain information table recorded [therein] in said recording medium, wherein said recording means stores said search information on said recording medium.

120. (Amended) A recording apparatus according to claim 101, [wherein] further comprising:

means for creating [said data area further has] menu information [for choosing] that enables a user to select a program chain to be reproduced, wherein said recording means